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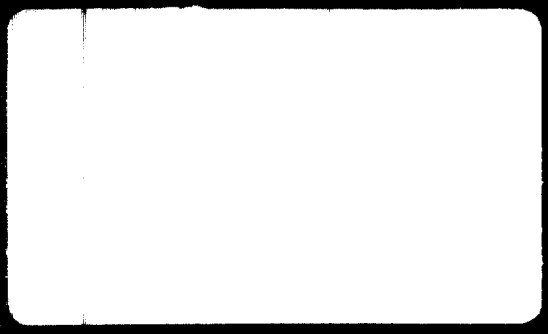

7315 Wisconsin Avenue
Bethesda, Maryland
20014

Mutagenic Evaluation of Compound FDA 71-59
Monosodium Phosphate Derivates 5/30/75

Mono- & Di-Glycerides

LBI PROJECT #2468

MUTAGENIC EVALUATION OF

COMPOUND FDA 71-59

997051323

MONO- AND DI-GLYCERIDES
MONOSODIUM PHOSPHATE DERIVATES

SUBMITTED TO

FOOD & DRUG ADMINISTRATION
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
ROCKVILLE, MARYLAND

SUBMITTED BY

LITTON BIONETICS, INC.
5516 NICHOLSON LANE
KENSINGTON, MARYLAND

MAY 30, 1975

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EVALUATION SUMMARY

Compound FDA 71-59, Mono- and di-glycerides monosodium phosphate derivates did not exhibit genetic activity in any of the *in vitro* microbial assays employed in this evaluation.

DATE: May 30, 1975

SPONSOR: Food and Drug Administration, Contract Number 223-74-2104

SUBJECT: Evaluation of Test Compound 997051323, Mono- and di-glycerides Monosodium phosphate derivates, FDA 71-59

I. OBJECTIVE

The objective of this study was to evaluate the test compound for genetic activity in microbial assays with and without the addition of mammalian metabolic activation preparations.

II. MATERIALS

A. Test Compound

1. Date Received: August, 1974

2. Description: white waxy chunks

B. Indicator Microorganisms

The following strains of indicator microorganisms were used in the evaluation:

Yeast Strain: *Saccharomyces cerevisiae*, strain D4

Bacteria Strains: *Salmonella typhimurium*, strains: TA-1535
TA-1537
TA-1538

C. Reaction Mixture

The following reaction mixture was employed in the activation tests:

Component	Final Concentration/ml
1. TPN (sodium salt)	6.0 µM
2. Isocitric acid	49.0 µM
3. Tris buffer, pH 7.4	28.0 µM
4. $MgCl_2$	1.7 µM
5. Tissue homogenate fraction	72.0 mg

D. Tissue Homogenates and Supernatants

The tissue homogenates and 9,000 x g supernatants were prepared from tissues of the following mammalian species: Mouse-ICR random bred adult males; rat-Sprague-Dawley adult males; and primate-Macaca mulatta adult males.

E. Positive Control Compounds

Table 1 lists chemicals for positive controls in the direct and activation assays.

TABLE 1

POSITIVE CONTROLS USED IN DIRECT AND ACTIVATION ASSAYS

Assay	Chemical[a]	Solvent	Probable Mutagenic Specificity
Nonactivation	Ethyl methanesulfonate	Water or saline	BPS[b]
	2-Nitrofluorene	Dimethylsulfoxide[c]	FS[b]
	Quinacrine mustard	Water or saline	FS[b]
Activation	Dimethylnitrosamine	Water or saline	BPS[b]
	2-Acetylaminofluorene	Dimethylsulfoxide[c]	FS[b]

[a] Concentrations given in the Results Section
[b] BPS = base-pair substitution; FS = frameshift
[c] Previously shown to be non-mutagenic

III. METHODS

A. Toxicity

The solubility, toxicity and doses for all chemicals were determined prior to screening.

Each chemical was tested for survival against the specific indicator strains over a range of doses to determine the 50% survival dose. Bacteria were tested in phosphate buffer, pH 7.4, for one hour at 37°C on a shaker. Yeasts were tested in phosphate buffer, pH 7.4, for four hours at 30°C on a shaker. The 50% survival curve and the 1/4 and 1/2 50% doses calculated.

If no toxicity was obtained for a chemical with a given strain, then a maximum dose of 5% (w/v) was used against the strain.

Unless otherwise specified, the doses calculated for the tests in buffer were applied to the activation tests. The solubility of the test chemical under treatment conditions is stated in the Results Section.

B. Plate Tests

In the nonactivation procedure, approximately 10^9 cells of a log-phase culture of the bacterial indicator strains were spread over the surface of a minimal plate, and a measured amount of the test chemical was placed in the center of the test plate. In activation tests, the test chemical was added to the cells, and an aliquot of the mixture was spread on the surface of the test plate. The reaction mixture (0.1 ml) plus tissue extract was then spotted on the surface of the plate. Positive and solvent controls were included. All plates were incubated at 37°C for four days and then scored. Each compound (test, positive control and solvent control) was done in duplicate. Concentrations of the positive control compounds are listed in the Results Section.

C. Suspension Tests

1. Nonactivation

Log-phase bacteria and stationary-phase yeast cultures of the indicator organisms were grown in complete broth, washed and resuspended in 0.9% saline to densities of 1×10^9 cells/ml and 5×10^7 cells/ml, respectively. This constituted the working stock for tests of a group of test chemicals and their respective controls. Tests were conducted in plastic tissue culture plates. Cells plus appropriate volume(s) of the test chemical were added to the wells to give a final volume of 1.5 ml. The solvent replaced the test chemical in the negative controls. Treatment was at 30°C for four hours for yeast tests and at 37°C for one hour for bacterial tests. All flasks were shaken during treatment. Following treatment, the plates were set on ice. Aliquots of cells were removed, diluted in sterile saline (4°C) and plated on the appropriate complete media. Undiluted samples from flasks containing the bacteria were plated on minimal selective medium in reversion experiments. Samples from a 10^{-1} dilution of treated cells were plated on the selected media for enumeration of gene conversion with strain D4. Bacterial plates were scored after incubation for 48 hours at 37°C. The yeast plates were incubated at 30°C for 3-5 days before scoring.

2. Activation

Bacteria and yeast cells were grown and prepared as described in the nonactivation tests. Measured amounts of the test and control chemicals plus 0.25 ml of the stock-cell suspension were added to wells of the Linbro plate containing the appropriate tissue fraction and reaction mixture. All flasks (bacteria and yeast) were incubated at 37°C in an oxygen atmosphere with shaking. The treatment times as well as the dilutions, plating procedures and scoring of the plates were the same as described for nonactivation tests.

D. Preparation of Tissue Homogenates and 9,000 x g Cell Fractions

Male animals (sufficient to provide the necessary quantities of tissues) were killed by cranial blow, decapitated and bled. Organs were immediately dissected from the animal using aseptic techniques and placed in ice-cold 0.25 M sucrose buffered with Tris at pH of 7.4. Upon collection of the desired quantity of organs, they were washed twice with fresh buffered sucrose and completely homogenized with a motor-driven homogenizing unit at 4°C. The whole organ homogenate obtained from this step was divided into two samples. One sample was frozen at -80°C and the other was centrifuged for 20 minutes at 9,000 x g in a refrigerated centrifuge. The supernatant from the centrifuged sample was retained and frozen at -80°C. These two frozen samples were used for the activation studies.

E. Data Recording and Reporting

Following the specified incubation periods all population plates were scored by an automatic colony counter and the results from each plate of a set were recorded, in ink, on data processing forms. All minimal or other types of selective media plates were hand scored and the results recorded along with the respective population data. Other relevant experimental data were recorded on experimental definition forms. For bacteria strains the number of colonies recorded from either the population or selective plates represents that number in 1 ml of test suspension plated. The numbers recorded for the yeast strain D4 represent the number in 0.5 ml of test suspension plated. The data were then processed and printed from a computer program.

IV. RESULTS SECTION

A. Solubility Properties of the Test Compound

1. Name or code designation of the test compound: 99705123, Monosodium phosphate derivates, mono- and di-glycerides

2. Test solvent: DMSO

3. Solubility of the test compound under treatment conditions: Insoluble under treatment conditions

4. Additional comments: white waxy chunks

B. Toxicity and Dosage Determinations for the Test Compound

1. Test date for toxicity determination: January 29, 1975

2. The 50% survival level was determined for bacteria and yeast indicator organisms by conducting survival curves with the test compound at the following concentrations:

Percent Concentration (w/v or v/v)

5.0
0.5
0.05
0.005
0.0005

3. Concentrations of the test compound used in the mutagenicity tests:

Dose	Percent Concentration	
	Bacteria	Yeast
1/4 50% Survival	2.5	2.5
1/2 50% Survival	5.0	5.0
50% Survival	10.0	10.0
Plate Tests	5.0	--

V. SUMMARY OF TEST RESULTS

Plate Tests

A. Name or code designation of the test compound: 997057323

B. Test date: March 29, 1975

C. Concentration of the test compound: 5.0%

Test	Species	Tissue	Revertants/Plate TA-1535 1	TA-1535 2	TA-1537 1	TA-1537 2	TA-1538 1	TA-1538 2
1. Nonactivation								
Solvent Control	---	---	11	20	4	5	15	11
Positive Control[a]	---	---	>10^5	>10^5	193	207	145	134
Test Compound	---	---	25	18	2	11	17	16
2. Activation								
Negative Control	---	---	7	10	6	3	7	12
Solvent Control	---	---	20	24	5	9	15	14
Reaction Mixture Control	---	---	23	20	7	8	18	16
Positive Control[b]	Mouse	Liver	>10^3	>10^3	39	34	343	357
Positive Control		Lung	12	8	2	1	11	16
Positive Control		Testes	16	17	3	8	7	11
Positive Control	Rat	Liver	>10^3	>10^3	89	88	247	341
Positive Control		Lung	14	7	2	3	14	18
Positive Control		Testes	16	13	5	7	10	13
Positive Control	Monkey	Liver	273	356	30	33	123	119
Positive Control		Lung	8	8	2	2	13	14
Positive Control		Testes	15	12	3	6	8	11
Test Compound	Mouse	Liver	4	6	7	6	8	9
Test Compound		Lung	13	4	3	3	10	8
Test Compound		Testes	4	7	10	6	10	17
Test Compound	Rat	Liver	4	4	1	8	4	9
Test Compound		Lung	11	8	6	11	12	6
Test Compound		Testes	5	7	10	6	12	16
Test Compound	Monkey	Liver	10	3	4	4	6	9
Test Compound		Lung	16	7	11	4	5	5
Test Compound		Testes	11	11	10	10	8	12

a TA-1535 EMS 10 µl/plate
TA-1537 QM 20 µg/plate
TA-1538 NF 100 µg/plate

b TA-1535 DMNA 50 µM/plate
TA-1537 AAF 100 µg/plate
TA-1538 AAF 100 µg/plate

DATA TABLE TERMS AND ABBREVIATIONS

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
COMPOUND	Client designated compound number appears in this column.
TEST CODES	NAN = Nonactivation: Solvent Control NAP = Nonactivation: Positive Control NA1 = Nonactivation: Test Compound Dose 1 NA2, etc. = Reflects the other dose level(s) A+C = Negative Chemical Control A-C = Activation: Solvent Control ACP = Activation: Positive Control ACT = Activation: Test Compound A+T = Activation: Tissue Control LI = Liver Tissue Activation Fraction LU = Lung Tissue Activation Fraction KI = Kidney Tissue Activation Fraction TE = Testes Tissue Activation Fraction 1,2, etc. = Dose Levels
CONCENTRATION	All test compound dose levels are expressed as a whole number followed by an exponent (negative) identified by the appropriate units. Example: 0025-2PCT = 0.25 percent concentration
POPU	Total number of viable cells in the plating sample raised to some exponent printed directly below the abbreviation (i.e., EP + 6 = x 10^6).
MUT 1	Total number of mutants or convertants obtained from the sample plated raised to some exponent printed directly below the abbreviation (i.e., EP + 0 = x 10^0). For strain D4, MUT 1 represents the number of ADE+ convertants.
MUT 2	Only used for strain D4 and represents the number of TRY+ convertants in the plated sample.
FREQ 1	The calculated mutation or gene conversion frequency times the negative exponent written directly below. For strain D4, FREQ 1 represents the ADE+ value.
FREQ 2	Only used for strain D4 and represents the TRY+ conversion frequency.
CONTAM	Presence of contamination on any plates.

DATA TABLE TERMS AND ABBREVIATIONS (continued)

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
AAF	2-Acetylaminofluorene
DMSO	Dimethylsulfoxide
DMN	Dimethylnitrosamine
EMS	Ethyl Methanesulfonate
QM	Quinacrine Mustard
NF	Nitrofluorene
SPECIES	Animal Strains
SPRDAW	Sprague Dawley Rats
ICRFLO	Flow ICR Random Bred Mice
RHESUS	Rhesus Monkey (*Macaca mulatta*)
MIXEDB	Dog, Mixed Breed
NEWZEA	New Zealand White Rabbit

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES COMPOUND 997051323

TEST	ORG	TA1535 HIS EX-8	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
NAN		4.45	7.45	1.29	4.95	14.20	2.78
NAP		1599.68		90.60	102.52	36.66	169.41
NA1		9.04	8.83	1.76	4.64	7.95	2.40
NA2		12.37	9.31	1.14	5.78	14.18	4.03

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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES ICRFLO COMPOUND 997051323

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	5.99	2.10	11.20		16.01	4.11
ACT	A+T	12.45	2.10	10.46		15.24	3.26
ACT	A-C	6.65	2.91	10.54	3.19	19.85	3.33
ACT	PLI	1168.86	10.07	37.43		20.62	4.92
ACT	PLU	8.06	2.19	12.57		39.08	3.22
ACT	PTE	9.32	2.86	12.54		23.53	3.29
ACT	LI1	12.93	1.12	43.50	8.16	5.58	13.71
ACT	LI2	10.94	0.50	26.71	5.02	12.94	18.60
ACT	LU1	8.39	0.95	12.90		8.33	20.53
ACT	LU2	11.02	0.85	18.13		15.85	3.37
ACT	TE1	7.35	0.37	15.73		7.77	2.31
ACT	TE2	11.46	0.52	14.46		8.95	13.05

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 06/17/75

SPECIES SPRDAW/RAT COMPOUND 997051323

TEST	ORG	TA1538 HIS EX-8	TA1537 HIS EX-8	TA1535 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	5.39	0.63	17.47	1.43	1.17
ACT	A+T	10.55	1.23	11.03	1.78	1.87
ACT	A-C	7.30	0.58	11.62	2.11	1.56
ACT	PLT	57.37	7.28	1500.00	2.97	3.09
ACT	PLU	7.31	0.84	18.29	1.89	1.64
ACT	PTE	8.13	0.33	22.47	1.56	2.33
ACT	LI1	6.99	0.67	6.01	0.59	1.57
ACT	LI2	4.67	0.45	5.66	0.64	1.27
ACT	LU1	5.08	0.41	7.81	0.62	2.48
ACT	LU2	6.14	0.81	5.28	1.62	0.97
ACT	TE1	0.68	0.54	5.63	0.62	1.44
ACT	TE2	3.90	0.53	5.19	0.77	0.88

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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES RHESUS COMPOUND 997051323

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	7.43	7.44	4.49	10.40	1.65
ACT	A+T	14.05	11.84	4.09	15.69	2.55
ACT	A-C	7.01	7.04	5.55	14.76	2.24
ACT	PLI	1352.79	19.31	24.13	14.99	2.71
ACT	PLU	4.62	6.35	2.77	12.58	2.35
ACT	PTE	8.16	8.79	6.29	20.07	2.79
ACT	LI1	3.06	5.21	1.71	11.61	2.36
ACT	LI2	4.34	3.16	1.63	16.23	2.11
ACT	LU1	5.05	4.23	1.93	5.21	3.55
ACT	LU2	3.01	5.30	2.28	16.39	3.10
ACT	TE1	4.20	2.35	2.80	6.39	3.09
ACT	TE2	4.04	4.19	1.82	14.53	3.29

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VI. INTERPRETATION OF RESULTS AND CONCLUSIONS

Compound 997051323, Mono- and di-glycerides monosodium phosphate derivates, was evaluated for genetic activity in a series of *in vitro* microbial assays with and without metabolic activation. The following results were obtained:

A. *Salmonella typhimurium*

1. Plate tests

At a concentration of 5.0%, 997051323 was not mutagenic for TA-1535, TA-1537, or TA-1538 in either direct or activation plate assays.

2. Nonactivation suspension tests

The results of these tests were negative. The two dose levels with TA-1535 were high, but the repeat tests were negative.

3. Activation suspension tests

The results of these tests were negative. The two LI doses with TA-1538 using mouse tissue were repeated because of slightly increased mutant frequencies in the initial run.

B. *Saccharomyces cerevisiae*

1. Nonactivation suspension tests

The results of these tests were negative.

2. Activation suspension tests

The results of these tests were negative.

C. Conclusions

Test compound, Mono- and di-glycerides monosodium phosphate derivates, did not exhibit genetic activity in the assays employed in this evaluation.

Submitted by:

David Brusick

David Brusick, Ph.D.
Director of Genetics

APPENDIX

Tabulation of Data

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507701 DETECTOR TA1535 SPECIES DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0382	0017	4.45	0
	NAP		EMS 0.002 %	0316	5055	1599.68	0
997051323	NA1		0005-0 PCT.	0166	0015	9.04	2
997051323	NA2		0025-1 PCT.	0194	0024	12.37	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 511201 DETECTOR TA1535 SPECIES DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0792	0059	7.45	0
997051323	NA1		0005-0 PCT.	0385	0034	8.83	0
997051323	NA2		0025-1 PCT.	0451	0042	9.31	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507702 DETECTOR TA1537 SPECIES DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	0465	0006	1.29	0
	NAP		QM 1.0 UG/ML	0234	0212	90.60	0
997051323	NA1		0005-0 PCT.	0569	0010	1.76	2
997051323	NA2		0025-1 PCT.	0791	0009	1.14	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507902 DETECTOR TA1538 SPECIES DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		DMSO	0485	0024	4.95	0
	NAP		NF 125 UG-ML	0516	0529	102.52	0
997051323	NA1		0005-0 PCT.	0345	0016	4.64	0
997051323	NA2		0025-1 PCT.	0277	0016	5.78	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 510602 DETECTOR 0000D4 SPECIES DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	NAN		SALINE	0648	0092	0018	14.20	2.78	0
	NAP		EMS 1.0 %	0461	0169	0781	36.66	169.41	0
997051323	NA1		0005-0 PCT.	0541	0043	0013	7.95	2.40	0
997051323	NA2		0025-1 PCT.	0670	0095	0027	14.18	4.03	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 506301 DETECTOR TA1535 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0734	0044	5.99	0
	A+T		***NO MATCH***	0819	0102	12.45	0
	A-C		SALINE	0917	0061	6.65	0
	ACP	LI	DMN 50 UM/ML	0456	5330	1168.86	1
	ACP	LU	DMN 50 UM/ML	0608	0049	8.06	0
	ACP	TE	DMN 50 UM/ML	0590	0055	9.32	0
997051323	ACT	LI1	0005-0 PCT.	0557	0072	12.93	0
997051323	ACT	LI2	0025-1 PCT.	0658	0072	10.94	0
997051323	ACT	LU1	0005-0 PCT.	0644	0054	8.39	2
997051323	ACT	LU2	0025-1 PCT.	0717	0079	11.02	2
997051323	ACT	TE1	0005-0 PCT.	0939	0069	7.35	2
997051323	ACT	TE2	0025-1 PCT.	0637	0073	11.46	2

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 505901 DETECTOR TA1537 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1476	0031	2.10	0
	A+T		***NO MATCH***	1524	0032	2.10	0
	A-C		DMSO	1445	0042	2.91	0
	ACP	LI	AAF 800 UG/ML	1489	0150	10.07	0
	ACP	LU	AAF 800 UG/ML	1463	0032	2.19	0
	ACP	TE	AAF 800 UG/ML	1293	0037	2.86	0
997051323	ACT	LI1	0005-0 PCT.	1514	0017	1.12	2
997051323	ACT	LI2	0025-1 PCT.	2006	0010	0.50	0
997051323	ACT	LU1	0005-0 PCT.	1679	0016	0.95	2
997051323	ACT	LU2	0025-1 PCT.	2116	0018	0.85	0
997051323	ACT	TE1	0005-0 PCT.	1633	0006	0.37	0
997051323	ACT	TE2	0025-1 PCT.	2105	0011	0.52	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 506401 DETECTOR TA1538 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0598	0067	11.20	0
	A+T		***NO MATCH***	0841	0088	10.46	0
	A-C		DMSO	0446	0047	10.54	0
	ACP	LI	AAF 800 UG/ML	0505	0189	37.43	0
	ACP	LU	AAF 800 UG/ML	0565	0071	12.57	2
	ACP	TE	AAF 800 UG/ML	0606	0076	12.54	0
997051323	ACT	LI1	0005-0 PCT.	0223	0097	43.50	0
997051323	ACT	LI2	0025-1 PCT.	0337	0090	26.71	0
997051323	ACT	LU1	0005-0 PCT.	0372	0048	12.90	2
997051323	ACT	LU2	0025-1 PCT.	0342	0062	18.13	2
997051323	ACT	TE1	0005-0 PCT.	0464	0073	15.73	2
997051323	ACT	TE2	0025-1 PCT.	0408	0059	14.46	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 509302 DETECTOR TA1538 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A-C		DMSO	0595	0019	3.19	0
997051323	ACT	LI1	0005-0 PCT.	0343	0028	8.16	2
997051323	ACT	LI2	0025-1 PCT.	0637	0032	5.02	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 510401 DETECTOR 0000D4 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0706	0113	0029	16.01	4.11	0
	A+T		***NO MATCH***	1319	0201	0043	15.24	3.26	6
	A-C		SALINE	0660	0131	0022	19.85	3.33	2
	ACP	LI	DMN 90 UM/ML	0325	0067	0016	20.62	4.92	6
	ACP	LU	DMN 90 UM/ML	0870	0340	0028	39.08	3.22	2
	ACP	TE	DMN 90 UM/ML	0850	0200	0028	23.53	3.29	4
997051323	ACT	LI1	0005-0 PCT.	0591	0033	0081	5.58	13.71	0
997051323	ACT	LI2	0025-1 PCT.	0688	0089	0128	12.94	18.60	6
997051323	ACT	LU1	0005-0 PCT.	0492	0041	0101	8.33	20.53	0
997051323	ACT	LU2	0025-1 PCT.	0593	0094	0020	15.85	3.37	0
997051323	ACT	TE1	0005-0 PCT.	0605	0047	0014	7.77	2.31	6
997051323	ACT	TE2	0025-1 PCT.	0659	0059	0086	8.95	13.05	0

Litton BIONETICS

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 506501 DETECTOR TA1535 SPECIES SPRDAW DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0435	0076	17.47	0
	A+T		***NO MATCH***	0571	0063	11.03	0
	A-C		SALINE	0697	0081	11.62	0
	ACP	LI	DMN 50 UM/ML	0388	5820	1500.00	0
	ACP	LU	DMN 50 UM/ML	0410	0075	18.29	0
	ACP	TE	DMN 50 UM/ML	0356	0080	22.47	2
997051323	ACT	LI1	0005-0 PCT.	0599	0036	6.01	2
997051323	ACT	LI2	0025-1 PCT.	0583	0033	5.66	2
997051323	ACT	LU1	0005-0 PCT.	0461	0036	7.81	0
997051323	ACT	LU2	0025-1 PCT.	0360	0019	5.28	2
997051323	ACT	TE1	0005-0 PCT.	0941	0053	5.63	2
997051323	ACT	TE2	0025-1 PCT.	0752	0039	5.19	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507001 DETECTOR TA1537 SPECIES SPRDAW DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1906	0012	0.63	0
	A+T		***NO MATCH***	2198	0027	1.23	0
	A-C		DMSO	1900	0011	0.58	0
	ACP	LI	AAF 800 UG/ML	1594	0116	7.28	0
	ACP	LU	AAF 800 UG/ML	1657	0014	0.84	2
	ACP	TE	AAF 800 UG/ML	1841	0006	0.33	2
997051323	ACT	LI1	0005-0 PCT.	1803	0012	0.67	0
997051323	ACT	LI2	0025-1 PCT.	2863	0013	0.45	2
997051323	ACT	LU1	0005-0 PCT.	1692	0007	0.41	0
997051323	ACT	LU2	0025-1 PCT.	1971	0016	0.81	2
997051323	ACT	TE1	0005-0 PCT.	1844	0010	0.54	0
997051323	ACT	TE2	0025-1 PCT.	1889	0010	0.53	2

Litton BIONETICS

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 511207 DETECTOR TA1538 SPECIES SPRDAW DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A-C		DMSO	0794	0058	7.30	0
997051323	ACT	LI1	0005-0 PCT.	0386	0027	6.99	0
997051323	ACT	LI2	0025-1 PCT.	0450	0021	4.67	0
997051323	ACT	LU1	0005-0 PCT.	0551	0028	5.08	2
997051323	ACT	LU2	0025-1 PCT.	0635	0039	6.14	2
997051323	ACT	TE1	0005-0 PCT.	0444	0003	0.68	2
997051323	ACT	TE2	0025-1 PCT.	0616	0024	3.90	0
	A+C		AAF 800 UG/ML	0445	0024	5.39	0
	A+T			0275	0029	10.55	2
	ACP	LI	AAF 800 UG/ML	0507	0301	59.37	0
	ACP	LU	AAF 800 UG/ML	0588	0043	7.31	0
	ACP	TE	AAF 800 UG/ML	0541	0044	8.13	0

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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 515706 DETECTOR 0000D4 SPECIES SPRDAW/RAT DATE - 06/17/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0769	0011	0009	1.43	1.17	0
	A+T		***NO MATCH***	1068	0019	0020	1.78	1.87	0
	A-C		SALINE	0900	0019	0014	2.11	1.56	0
	ACP	LI	DMN 90 UM/ML	0809	0024	0025	2.97	3.09	0
	ACP	LU	DMN 90 UM/ML	0792	0015	0013	1.89	1.64	0
	ACP	TE	DMN 90 UM/ML	0771	0012	0018	1.56	2.33	0
997051323	ACT	LI1	0005-0 PCT.	0508	0003	0008	0.59	1.57	2
997051323	ACT	LI2	0025-1 PCT.	0786	0005	0010	0.64	1.27	7
997051323	ACT	LU1	0005-0 PCT.	0484	0003	0012	0.62	2.48	0
997051323	ACT	LU2	0025-1 PCT.	0616	0010	0006	1.62	0.97	0
997051323	ACT	TE1	0005-0 PCT.	0974	0006	0014	0.62	1.44	0
997051323	ACT	TE2	0025-1 PCT.	0913	0007	0008	0.77	0.88	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507201 DETECTOR TA1535 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0888	0066	7.43	2
	A+T		***NO MATCH***	0541	0076	14.05	0
	A-C		SALINE	0913	0064	7.01	0
	ACP	LI	DMN 50 UM/ML	0502	6791	1352.79	0
	ACP	LU	DMN 50 UM/ML	0823	0038	4.62	0
	ACP	TE	DMN 50 UM/ML	0625	0051	8.16	0
997051323	ACT	LI1	0005-0 PCT.	0914	0028	3.06	0
997051323	ACT	LI2	0025-1 PCT.	0899	0039	4.34	0
997051323	ACT	LU1	0005-0 PCT.	0832	0042	5.05	2
997051323	ACT	LU2	0025-1 PCT.	1195	0036	3.01	0
997051323	ACT	TE1	0005-0 PCT.	0904	0038	4.20	0
997051323	ACT	TE2	0025-1 PCT.	1238	0050	4.04	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 511401 DETECTOR TA1537 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0847	0063	7.44	2
	A+T		***NO MATCH***	0515	0061	11.84	0
	A-C		DMSO	0710	0050	7.04	0
	ACP	LI	AAF 800 UG/ML	0844	0163	19.31	0
	ACP	LU	AAF 800 UG/ML	0914	0058	6.35	0
	ACP	TE	AAF 800 UG/ML	0842	0074	8.79	0
997051323	ACT	LI1	0005-0 PCT.	0672	0035	5.21	0
997051323	ACT	LI2	0025-1 PCT.	0474	0015	3.16	0
997051323	ACT	LU1	0005-0 PCT.	0544	0023	4.23	0
997051323	ACT	LU2	0025-1 PCT.	0472	0025	5.30	0
997051323	ACT	TE1	0005-0 PCT.	0469	0011	2.35	0
997051323	ACT	TE2	0025-1 PCT.	0453	0019	4.19	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 507601 DETECTOR TA1538 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0802	0036	4.49	0
	A+T		***NO MATCH***	0464	0019	4.09	0
	A-C		DMSO	0721	0040	5.55	0
	ACP	LI	AAF 800 UG/ML	0601	0145	24.13	2
	ACP	LU	AAF 800 UG/ML	0649	0018	2.77	0
	ACP	TE	AAF 800 UG/ML	0572	0036	6.29	0
997051323	ACT	LI1	0005-0 PCT.	0467	0008	1.71	0
997051323	ACT	LI2	0025-1 PCT.	0552	0009	1.63	0
997051323	ACT	LU1	0005-0 PCT.	0414	0008	1.93	0
997051323	ACT	LU2	0025-1 PCT.	0658	0015	2.28	0
997051323	ACT	TE1	0005-0 PCT.	0464	0013	2.80	0
997051323	ACT	TE2	0025-1 PCT.	0548	0010	1.82	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468
EXPERIMENT 510501 DETECTOR 0000D4 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0423	0044	0007	10.40	1.65	0
	A+T		***NO MATCH***	0548	0086	0014	15.69	2.55	0
	A-C		SALINE	0759	0112	0017	14.76	2.24	0
	ACP	LI	DMN 90 UM/ML	0774	0116	0021	14.99	2.71	0
	ACP	LU	DMN 90 UM/ML	0469	0059	0011	12.58	2.35	0
	ACP	TE	DMN 90 UM/ML	0538	0108	0015	20.07	2.79	0
997051323	ACT	LI1	0005-0 PCT.	0508	0059	0012	11.61	2.36	0
997051323	ACT	LI2	0025-1 PCT.	0616	0100	0013	16.23	2.11	0
997051323	ACT	LU1	0005-0 PCT.	0422	0022	0015	5.21	3.55	0
997051323	ACT	LU2	0025-1 PCT.	0549	0090	0017	16.39	3.10	0
997051323	ACT	TE1	0005-0 PCT.	0485	0031	0015	6.39	3.09	0
997051323	ACT	TE2	0025-1 PCT.	0516	0075	0017	14.53	3.29	0